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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/277,312 03/26/99 BUCKINGHAM

M 53836USA1A

EXAMINER

IM52/0925

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HOKE, V  
ART UNIT


PAPER NUMBER

1714  
DATE MAILED:

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. <b>09/277,312</b>	Applicant(s) <b>BUCKINGHAM ET AL</b>	
	Examiner <b>VERONICA HOKE</b>	Art Unit <b>1714</b>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on Jul 17, 2001

2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-15 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some\* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____	18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 20) <input type="checkbox"/> Other: _____
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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,5-7,11 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Saunders.

Reference discloses flexible fire retardant polyurethane compositions comprising water insoluble minerals which are granules of expandable vermiculite coated with ammonium phosphate. The latter modified product is an intumescent fire retardant. The flexibility of the composition resides in its foamed state. Its fire sealing nature is deemed apparent in its applicability in meeting building inspection codes. See col.1, line 1 through col.2, line 5 and col.7, lines 51-55.

The polymer may be a synthetic elastomer ( rubber) as indicated by the alkylene oxide polyol used in the urethane resin's preparation. The weight proportion of the phosphorus fire retardant and vermiculite is not explicitly stated however the concentrations are such that the preservative "preferably extend an inch or two inches below the surface" of the vermiculite filler ( col.2, lines 13-36). This preservative's concentration is characterized as being sufficient to impart fire retardant properties to the urethane foam such that it is useful as insulation in buildings and sealing off mine shafts. Applicants ratios of mineral granules to thermoplastic resin and phosphorus containing flame retardant is considered to be within this reference's teachings given the

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commonalities of both the type of ingredients in the composition and the composition's application as a fire stopping sealant.

Claims 1 and 5-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brown (369).

Reference discloses synthetic rubber (ethylene vinyl acetate plus rubber- col.2, lines 37-39 and 69- col.3, line 3) containing as the flame retardant a blend of powdered sodium silicate as an intumescent material and an ammonium phosphate which is preferably the mono ammonium phosphate. The softness rating applicants claims state is considered an inherent property of reference's composition.

Claims 1,4-7,11 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over von Bonin et al ( 030).

This reference discloses thermoplastic or rubber polysiloxane compositions which are made flame retardant with expandable graphite and ammonium polyphosphate or ethylene diamine phosphate. The composition is useful as fire wall sealants ( col.3, lines 40-53). The relative quantities of the fire retardant components are 3-50 % ammonium polyphosphate, and 0.1 to 50 % expandable graphite. See col.2, lines 11-18 and 60-62. The instant claims' softness rating range is considered to be inherent in reference's compositions.

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Claims 1,5,7 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jonas.

Jonas discloses fire retardant thermoplastic resin compositions comprising e.g. polyethylene, polystyrene or nylons, containing particulate organophilic cationic modified clay in the form of a dry powder ( col.1 - col.2 line 64) and a halogen free fire retardant such as tritolyl phosphate. Clay is a hydrated alkali metal silicate. The organophilic cation modification increases the clay's anti-dripping role during burning. The clay is not characterized as being intumescent however given its particulate state, the burden shifts to applicant to prove that it does not act to fireproof by intumescent behavior. The total quantity of flame retardant is 0.5 to 50 % of the polymer content thus indicating a considerably wide variation dependent upon the polymer which is being protected. The instant claims stipulated fire-retardant proportions are therefore not considered unobvious.

Claims 1-12 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Horacek ( 040).

Fire stopping intumescent sealant compositions comprising a polymer such as ethylene vinyl acetate, an expandable graphite, AMGARD V490 ( a phosphorus containing fire retardant ) or other P-containing fire retardant such as resorcinol bis tetraphenyl phosphate or triphenyl phosphate are utilized. The conjoint presence of expandable vermiculite is also suggested. The compositions are not suggested as having any softness.

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Claims 1,2,4 and 5-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over von Bonin (853).

Expandable vermiculite and / graphite are dehydratable fillers which are utilized with phosphorus flame retardants such as red P , a phosphate ester of ammonium phosphate along with melamine and gypsum ( calcium sulfate) in an aqueous dispersion of polymers such as butadiene rubber, polyvinylacetate ( which water is subsequently removed) for the purpose of providing fire stopping sealants for building openings. The vermiculite and/ or graphite fillers are present at 0.5 to 80 % of the composition, the phosphate 0.3 to 70 %. Applicants compositions do not preclude calcium sulfate or melamine. The softness rating range stipulated by the instant claims is considered inherent in reference's compositions since they are similarly flexible.

Claims 1-12 are rejected under 35 U.S.C. 102( b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over von Bonin ( 148).

Intumescent foam forming metal phosphonate flame retardants are blended with expandable graphite, expandable borates, silicates and / or vermiculites to render plastics such as polyurethanes, polyesters and acrylics, fire retardant. Applications include fire stopping sealants. The foamed nature of the product indicates flexibility. The instant claims softness rating range is considered inherent in reference's composition given their common ingredients, proportions and applications.

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Claims 1-10 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Goto et al.

Heat expandable graphite (a) blended with a water soluble synergist (b) wherein the latter is present in amount from less than 1 to upto 100 parts per hundred parts (a), are used to flameproof polymers such as polyethylene vinylacetate. The water soluble synergist is preferably a phosphorus compound such as ammonium polyphosphate. The two component composition is tableted and added optionally with a water insoluble P containing compound such as red P, resorcinol diphenyl phosphate, triphenyl phosphate and/ or zinc borate. The instant claims softness rating range is considered to inherently characterize reference's composition given the commonality of ingredients and their proportions.

Claims 1-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over von Bonin (780).

Expandable graphite is added to vermiculite, ethylene diamine phosphate, ammonium polyphosphate, alkali metal silicate hydrates and/ or borates along with binders such as polyesters or polyurethanes in formulating fire retardant molding compositions. The flexible nature of the articles formed by this composition is considered inherent given their common sealant utilities.

See col.2, , lines 36-48.

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Claims 1-4,6,7,11 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over von Bonin ( 515).

Expandable graphite and a phosphorus containing polyol and/ or borate and / or amine salt such as ethylene diamine phosphate are incorporated into polyurethane foams for fire sealant applications. See col.3, lines 36-col.5. Instant claims softness ratings are considered inherent property of reference's compositions given their commonality in ingredients, their proportions and applications as fire sealants.

Claims 1,4,6 and are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okisaki et al ( 9140 .

A blend of PPO and another thermoplastic or thermosetting resin such as ABS or polyolefins ( col.2, lines 1-45) is compounded with expandable graphite, red P and another P compound such as ammonium polyphosphate or melamine phosphate 9 col.4, lines 3-34) in quantities which are within applicants . Softness ratings of instant compositions is considered inherent property of reference's compositions given their common composition and utility.

Claims 1-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over von Bonin (387).



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Metal acid phosphates and expandable graphite optionally with vermiculite, borosilicate or sodium silicate along with a synthetic resin such as butadiene styrene ( col.5, line 44) are molded into articles capable of providing fire shielding protection. See col.2- col.5. Instant claims' softness rating range is considered to be inherent property of reference's composition given the commonality of the ingredients and their proportions.


Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welna ( 671) taken with Michaeli, as stated in the two prior mailed rejections taken with von Bonin (any one), Horacek, Brown, Orisaki et al, Saunders or Jonas as applied to claims 1-12 above.

These secondary references replace the examiner's previous reliance on Annemaier et al for the contention that modifying Welna's putty consistency composition comprising expandable graphite ( and / or vermiculite)/ phosphorus- containing/ ethylene vinyl acetate ( optionally diene rubber ) to a softness rating less than 4.00 mm would be obvious.

As elated by these secondary references it is extremely well known that non- flowable ,non-putty yet flexible fire retardant compositions useful as fire sealants for openings in buildings ( about pipes, widows, doors,cables, ducts) are formed by compositions containing the same ingredients characterizing Welna's compositions but in different proportions. Hence the routineer in this art is quite cognizant and is motivated to adjust Welna's composition comprising the same requisite ingredients ( granulated minerals which intumesce, P- containing fire retardant to avoid organo halides' halogenous gases and a elastomeric binder) In order to provide a sealant which does not have a putty character at room temperature. Welna's disclosure of the use of a Mogul mixture

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for the composition's compounding is clearly stated as to require no amplification except to note as stated in several previous office actions that Michaeli related that such mixers for blending plastics with compounding ingredients are known to provide high shear blending. Accordingly application of this technique to the composition's blending where a non-putty consistency is alternatively sought, is yet considered to be within the ordinary worker in this field of endeavor.

  
VERONICA P. HOKE  
PRIMARY EXAMINER

vph

September 19, 2001

703 308-2444